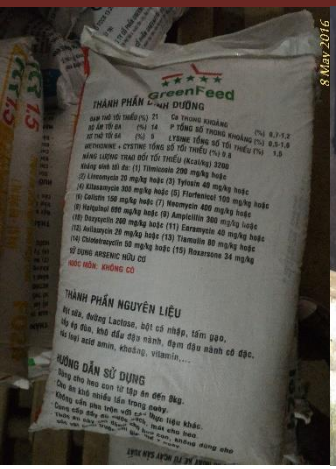
From measuring to managing: The experience of food safety in Vietnam

Hung Nguyen-Viet
International Livestock Research Institute & Hanoi University of Public Health

Better Targeting Food Safety Investments in Low and Middle Income Countries
Brussels, 24 May 2017





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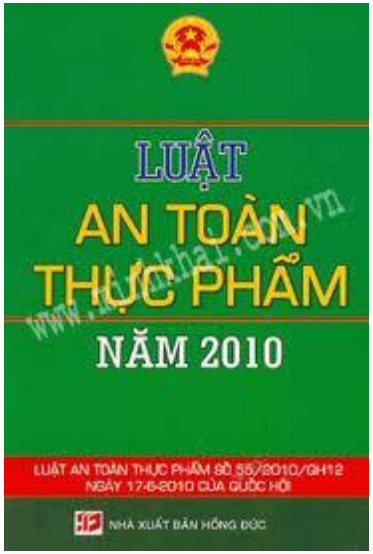
Outline

- Food safety in Vietnam: context
- Evidences from burden of diseases: risk assessment research
- Managing risks: research to policy translation and learning from other countries

Food safety in Vietnam



- Food safety among the **most pressing issues**, more important than education or health care
- Vietnam has a **modern food safety legislation** system but the use of risk based approach is limited
- Risk perception towards **chemical hazards** is important, issue of **risk communication**
- Food exports relatively well managed but **deficits in domestic markets**
- Vietnam government is actively **responding to high food safety concerns**

Importance of pork for food security in Vietnam

Pork is an important component of the Vietnamese diet

- More than 70% of consumed meat is pork, 27kg/capita/year
- 83% produced by very small or small farms
- 76% of pigs are processed in nearly 30,000 small slaughterhouses.
- Preference for “warm” pork supplied in retail traditional markets (80% of all pork marketed) → affordable but control challenges
- Consumption of risky pork products is common (raw fermented/blood pudding)

Vegetables and fish as popular and potentially risky foods

Pork risk assessment

PigRISK: Pork safety in Vietnam (2012-2017)

Microbial and Chemical Risk Assessment

- *Salmonella* risk pathways developed for producers, slaughterhouse and consumers, quantitative microbial risk assessment (QMRA) risk for consumer
- Chemical risk assessment: antibiotic residues, banned chemicals, heavy metals

- Feed in bags, remaining feeds at the cages, environment
- Liver
- Kidney
- Pork
- Consumption survey

1,275 samples (farms, slaughterhouse, market) collected during 1 year

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PigRISK - microbial (*Salmonella*) contamination

Actor	Sample type	Prev (%)
Producer	Drink water	19.4
Producer	Floor swab	36.1
Producer	Waste water	38.9
Slaughter house	Carcass swab	38.9
Slaughter house	Feces	33.6
Slaughter house	Floor swab	22.4
Slaughter house	Water	20.4
Market	Overall	34.1

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Dang Xuan Sinh et al, 2016, IJPH

PigRISK – QMRA for salmonellosis

Age and gender groups	Estimated annual salmonellosis incidence rate (Mean (90% CI)) (%)
Children (under 5 years old)	11.18 (0 – 45.05)
Adult female (6-60 years old)	16.41 (0.01 – 53.86)
Adult male (6-60 years old)	19.29 (0.04 – 59.06)
Elder (over 60 years old)	20.41 (0.09 – 60.76)
Overall	**17.7 (0.89 – 45.96)**

The annual incidence of foodborne salmonellosis in the Asian region including Vietnam was 1% (range 0.2-7%) (Havelaar 2015)

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Dang Xuan Sinh et al, 2016, IJPH

Selected key results: Chemical risk assessment

Chemical hazards	Limit of detection (µg/kg)	Liver		Kidney		Meat	
		No. positive/ *n* (%)	Residue level [mean (min–max)] µg/kg	No. positive/ *n* (%)	Residue level [mean (min–max)] µg/kg	No. positive/ *n* (%)	Residue level [mean (min–max)] µg/kg
Tetracyclines	50	0/18	–	0/18	–	0/18	–
Fluoroquinolones	30	0/18	–	1/18	–	0/18	–
Sulfonamides		**2/18 (11)**		**2/18 (11)**		**9/18(50)**	
Sulfamethazine	15	2	68 (45–91)	1	87	5	155.5 (36–263)
Sulfaquinoxalin	15	0	–	0	–	0	–
Chloramphenicol	0.15	0	–	0	–	3/18 (17)	0.54 (0.34–0.76)
β-agonists		2/18(11)		0/18		1/18 (5)	
Salbutamol	3	2	4.24 (2.77–5.71)	0	–	1	1.09
Clenbuterol	3	0	–	0	–	0	–
Heavy metals		**18/18 (100)**		**18/18 (100)**		**5/18 (28)**	
Lead	70	10/18 (55)	117 (71–303)	7/18 (39)	128 (71–208)	5	74 (70–79)
Cadmium	10	18/18 (100)	17.5 (10.4–31.6)	18/18 (100)	223 (126–383)	0	–
Arsenic	50	0	–	0	–	0	–

Bold reflects the name of group of chemicals

Most of samples: negative or did not exceed current MRL

Tuyet Hanh et al, 2016, IJPH

Economic impact of food borne diseases

ORIGINAL ARTICLE

JKMS

http://dx.doi.org/10.3346/jkms.2015.30.S2.S178 • J Korean Med Sci 2015; 30: S178-182

Cost of Hospitalization for Foodborne Diarrhea: A Case Study from Vietnam

Van Minh Hoang,[1] Tuan Anh Tran,[2] Anh Duc Ha,[3] and Viet Hung Nguyen[4]

Vietnam is undergoing a rapid social and economic developments resulting in speedy urbanization, changes in methods for animal production, food marketing systems, and food consumption habits. These changes will have major impacts on human exposures to

- Costs per treatment episode and per hospitalization day for foodborne diarrhea case were US$ 106.9 and US$ 33.6 respectively.
- 51.3%: Indirect cost (costs of times to patient, their relatives due to the patient's illness)
- 33.8%: Direct medical costs
- 14.9%: Direct non-medical costs (patient and their relatives)

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Hoang Van Minh et al, 2015, JKMS

Can we solve the problem?

Learning from international experiences

Nguyen-Viet *et al. Infectious Diseases of Poverty* (2017) 6:39
DOI 10.1186/s40249-017-0249-7

Infectious Diseases of Poverty

COMMENTARY Open Access

Food safety in Vietnam: where we are at and what we can learn from international experiences

Hung Nguyen-Viet[1*], Tran Thi Tuyet-Hanh[2], Fred Unger[1], Sinh Dang-Xuan[2] and Delia Grace[1]

Abstract

Food-borne diseases are attracting a lot of attention in Vietnam as a result of repeated episodes of adulterated and unsafe food. In this paper, we provide some perspectives on food safety in Vietnam from the point of view of an international research institution working on food safety with partners in the country. We argue that one of the key issues of food safety in Vietnam is that certain food value chain stakeholders lack ethics, which leads to the production and trading of unsafe foods in order to make profits irrespective of adverse health effects on consumers. In turn, the shortfall in ethical behaviours around food can be attributed to a lack of incentives or motivating factors.

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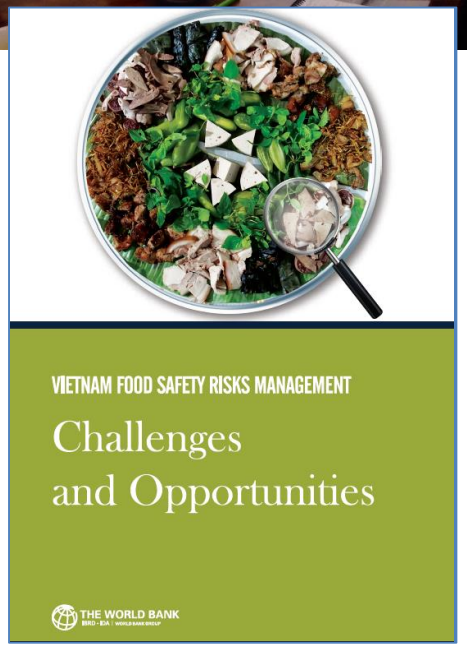
Vietnam food safety: translational research

- CGIAR/ILRI niche - risk assessment and policy / regulatory analysis for fresh foods in domestic markets
- WB convenes overall support to government
- ILRI support to Vietnamese Task Force on Risk Assessment for Food Safety, institutionalized by HUPH
- Long-term (>10 year) engagement – Government, WB, VN research, CGIAR partners, CGIAR



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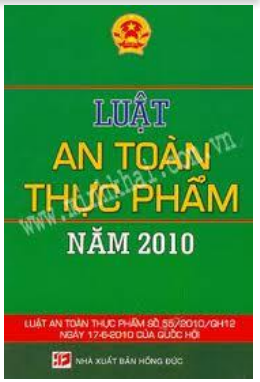
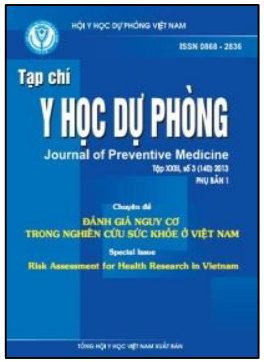
Policy translation in Food Safety: Taskforce of Risk assessment for food safety

- Taskforce: convening food safety risk assessment experts from universities, research institutes, policy makers from the ministries (health and agriculture)
- Activities:
  - Policy analyses of food safety
  - Case studies on risk assessment of relevant food commodities prioritized by policy makers
  - Trainings and ddevelop risk assessment guidelines
  - Communication and dissemination





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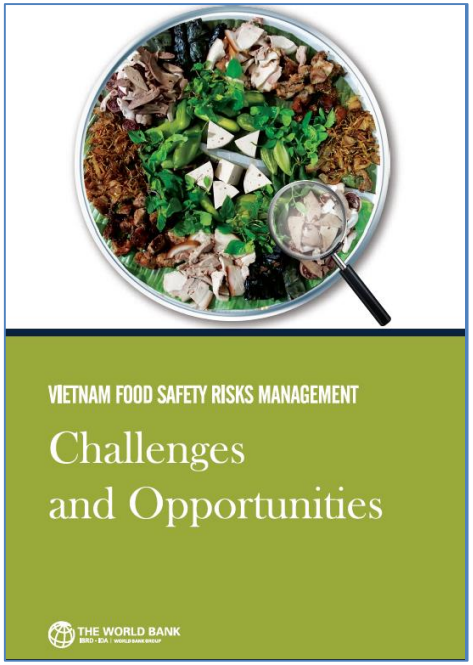

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Vietnam Food Safety Risks Management:

Key Findings

- Food safety is a major concern for the public, with high levels of anxiety each time there is a high-profile food safety incident.
- Vietnam's reputation amongst its trading partners as a major exporter of food products is vulnerable to trade statistics showing levels of contamination.
- Food-borne illness is notoriously difficult to assess in any country but the level of contamination found in Vietnamese food for domestic consumption justifies public and trade concerns.
- Without action by government, these problems are likely to worsen:
  - Food safety scares are highly topical and each case is likely to be exploited by the media;
  - International trade will become increasingly competitive with the new trade agreements;
  - Increasing urbanisation puts pressure on traditional ways of providing food.
- The report found that the primary cause of food-borne illness comes from bacterial contamination, rather than from chemicals, which could be prevented by better levels of food hygiene throughout the value chain.

Challenges and Opportunities

Background: A report on food safety was produced by the World Bank and partners at the request of the Government of Vietnam. This policy brief summarises the key findings and recommendations.

Principles for a high performing food safety systems

Safe food is delivered by the private sector, not by government: this is best attained through co-operative strategies for compliance, a focus on processes and prevention of incidents rather than end-product testing, and self-regulation by industry enforced by government.

• Enforcement requires: genuine collaboration across ministries; a network of well-trained food inspectors; risk-profiling of businesses leading to risk-based enforcement planning science- and risk- based food safety surveillance plans; laboratory networks (public and private) participating in proficiency testing and providing timely and quality-assured tests.

• Building a trusted and authoritative food safety system requires transparent and comprehensive hazard surveillance, planned communication for outbreaks and crises, and good relations with the public and institutions involved in food safety.

Key policy recommendations

The overall recommendation of the report is to develop a risk-based system using the principles of risk assessment, risk management and risk communication as set out by FAO/WHO. The recommendations are aligned with the National Strategy for Food Safety and would help realise its specific objectives. The following recommendations are key:

Risk assessment is the scientific evaluation of known or potential adverse health effects resulting from human exposure to foodborne hazards

• Strengthen the national food safety monitoring and surveillance system
• Improve data management to fill the need for better evidence on risks, impacts, and costs of foodborne disease and the efficacy and cost benefit of interventions.
• Develop databases of food businesses according to their risk profiles in order to understand and target effective interventions and enforcement.

Risk management is the process of selecting appropriate prevention and control options for improving food safety. It is based on risk assessment.

• Establish a performance management system within ministries and associated monitoring addressing the context of different food sectors and create a culture of evidence-based decision-making.
• Develop a "farm to fork" approach to food safety that covers inputs, production, processing and retail and

International experience and future actions for Vietnam?

- Upgrading markets and GAHP show little evidence
- Supermarket is not safer than wet market
- Demand side: increased awareness of consumers
- Risk communication
- Needs of evidence on health impacts of food safety

Take home messages

1. Food safety: important issue in Vietnam and the GoV is responding to this public concern
2. Small holders and informal market is important for food security and food safety
3. Evidences from research show important burden of food borne diseases (pork and others) but the risk mitigating options exist
4. Food safety policy influence: capacity building, persistence, opportunistic and time sensitive
5. International experiences and research evidences to help Vietnam better target food safety interventions

Contribution

- Pham Duc Phuc
- Dang Xuan Sinh
- Tran Thi Tuyet Hanh
- Hoang Van Minh
- Tran Thi Ngan
- Koei Makita
- Max Barot
- Lucy Lapar
- National Food Safety Risk Assessment Taskforce

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